



IFWO

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/670,454

DATE: 07/30/2004

TIME: 14:14:37

Input Set : N:\CrF3\RULE60\10670454.raw
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1 <110> APPLICANT: Thomas, Stephen G
 2 Hedden, Peter
 3 Phillips, Andrew L
 4 <120> TITLE OF INVENTION: Gibberellin 2-Oxidase
 5 <130> FILE REFERENCE: 0623.0970000
 6 <140> CURRENT APPLICATION NUMBER: US/10/670,454
 7 <141> CURRENT FILING DATE: 2003-09-26
 8 <150> PRIOR APPLICATION NUMBER: US/09/719,108
 9 <151> PRIOR FILING DATE: 2000-12-08
 10 <150> PRIOR APPLICATION NUMBER: PCT/GB99/01857
 11 <151> PRIOR FILING DATE: 1999-06-11
 12 <150> PRIOR APPLICATION NUMBER: GB 9812821.8
 13 <151> PRIOR FILING DATE: 1998-06-12
 14 <150> PRIOR APPLICATION NUMBER: GB 9815404.0
 15 <151> PRIOR FILING DATE: 1998-07-15
 16 <160> NUMBER OF SEQ ID NOS: 16
 17 <170> SOFTWARE: PatentIn Ver. 2.1
 19 <210> SEQ ID NO: 1
 20 <211> LENGTH: 1318
 21 <212> TYPE: DNA
 22 <213> ORGANISM: Phaseolus coccineus
 23 <400> SEQUENCE: 1
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 26 caagtccacg cccttgcata cggggattcc tgggtgcac ctcacgcacc ccgatgcaa 180
 27 gaatctcata gtgaacgcct gttagggactt cggcttctc aagcttgtga accatgggt 240
 28 tccattggag ttaatggcca atttagaaaa cggggccctc aggttctta aaaaatctca 300
 29 gtccgagaaa gacagagctg gtcccccga cccttcggc tatggtagca agaggattgg 360
 30 cccaaacgggt gatgtcggtt ggtcgaata cctcctcata aacaccaacc ctgatgttat 420
 31 ctcacccaaa tcactttgca tttccgaga aaatcctcat catttcaggg cgggtggta 480
 32 gaactacatt acagcagtga agaacatgtg ctatgcggtg ttggattga tggccggaggg 540
 33 gttggggata aggcagagga atacgtaa g cagggtgctg aaggatgaga aaagtgattc 600
 34 gtgcttcagg ttgaaccact acccgccctt ccctgaggtg caagcactga accgaaattt 660
 35 gggtgggtt ggggagcaca cagacccaca gataattct gtcttaagat ctaacagcac 720
 36 atctggctt caaatctgtc tcacagatgg cacttgggtt tcagtcac ctgatcagac 780
 37 ttccttttc atcaatgtt gtagcgtct acaggtatg actaatggga ggttaaaag 840
 38 tgtaaagcat agggtttgg ctgacacacaac gaagtcaagg ttatcaatga tctactttgg 900
 39 aggaccagcg ttgagtgaaa atatagcacc tttacccatca gtgatgtt aaggagagga 960
 40 gtgtttgtac aaagaggtaa catgggtgtga atacaagaag gctgcgtaca cttcaaggct 1020
 41 agctgataat aggttgcctt cccttccagaa atctgctgt gattaaccaa acacaccctt 1080
 42 caaattccac tcattttacg cacgtgttat taccaccaatt ttcttcctt ttctttcc 1140
 43 tgtgtctgtc taggttcaa acagttgact ctacttgaca tatatagaaa atgaataggt 1200
 44 taagatgtttt atcattttct tttcttgcgtt tcattcaatgt gtaacagttg gtctcaactt 1260

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48 <211> LENGTH: 331
49 <212> TYPE: PRT
50 <213> ORGANISM: Phaseolus coccineus
51 <400> SEQUENCE: 2
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54 Pro Phe Lys Ser Thr Pro Leu Phe Thr Gly Ile Pro Val Val Asp Leu
55 20 25 30
56 Thr His Pro Asp Ala Lys Asn Leu Ile Val Asn Ala Cys Arg Asp Phe
57 35 40 45
58 Gly Phe Phe Lys Leu Val Asn His Gly Val Pro Leu Glu Leu Met Ala
59 50 55 60
60 Asn Leu Glu Asn Glu Ala Leu Arg Phe Phe Lys Lys Ser Gln Ser Glu
61 65 70 75 80
62 Lys Asp Arg Ala Gly Pro Pro Asp Pro Phe Gly Tyr Gly Ser Lys Arg
63 85 90 95
64 Ile Gly Pro Asn Gly Asp Val Gly Trp Val Glu Tyr Leu Leu Leu Asn
65 100 105 110
66 Thr Asn Pro Asp Val Ile Ser Pro Lys Ser Leu Cys Ile Phe Arg Glu
67 115 120 125
68 Asn Pro His His Phe Arg Ala Val Val Glu Asn Tyr Ile Thr Ala Val
69 130 135 140
70 Lys Asn Met Cys Tyr Ala Val Leu Glu Leu Met Ala Glu Gly Leu Gly
71 145 150 155 160
72 Ile Arg Gln Arg Asn Thr Leu Ser Arg Leu Leu Lys Asp Glu Lys Ser
73 165 170 175
74 Asp Ser Cys Phe Arg Leu Asn His Tyr Pro Pro Cys Pro Glu Val Gln
75 180 185 190
76 Ala Leu Asn Arg Asn Leu Val Gly Phe Gly Glu His Thr Asp Pro Gln
77 195 200 205
78 Ile Ile Ser Val Leu Arg Ser Asn Ser Thr Ser Gly Leu Gln Ile Cys
79 210 215 220
80 Leu Thr Asp Gly Thr Trp Val Ser Val Pro Pro Asp Gln Thr Ser Phe
81 225 230 235 240
82 Phe Ile Asn Val Gly Asp Ala Leu Gln Val Met Thr Asn Gly Arg Phe
83 245 250 255
84 Lys Ser Val Lys His Arg Val Leu Ala Asp Thr Thr Lys Ser Arg Leu
85 260 265 270
86 Ser Met Ile Tyr Phe Gly Gly Pro Ala Leu Ser Glu Asn Ile Ala Pro
87 275 280 285
88 Leu Pro Ser Val Met Leu Lys Gly Glu Glu Cys Leu Tyr Lys Glu Phe
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90 Thr Trp Cys Glu Tyr Lys Lys Ala Ala Tyr Thr Ser Arg Leu Ala Asp
91 305 310 315 320
92 Asn Arg Leu Ala Pro Phe Gln Lys Ser Ala Ala
93 325 330
95 <210> SEQ ID NO: 3

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96 <211> LENGTH: 210
97 <212> TYPE: DNA
98 <213> ORGANISM: Artificial Sequence
99 <220> FEATURE:
100 <223> OTHER INFORMATION: Description of Artificial Sequence: Probe
101 <400> SEQUENCE: 3
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103 tggtttgggt gaacacacag atcctcaa atcatctgtc ttaagatcta acaacacttc 120
104 tggctccaa attaatctaa atgatggctc atggatctt gtccctcccg atcacacttc 180
105 cttcttcttc aacgtgggtg actctctcca 210
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108 <211> LENGTH: 199
109 <212> TYPE: DNA
110 <213> ORGANISM: Artificial Sequence
111 <220> FEATURE:
112 <223> OTHER INFORMATION: Description of Artificial Sequence: Probe
113 <400> SEQUENCE: 4
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115 atcgaggatt tcaatgat atttcggccg accggcattt agccagaaga tcgcaccatt 120
116 gccatgcctt gtcctgagc aagatgattt gcttacaaa gaattcactt ggtctcaata 180
117 caaatcttctt gcttacaag 199
119 <210> SEQ ID NO: 5
120 <211> LENGTH: 1318
121 <212> TYPE: DNA
122 <213> ORGANISM: Arabidopsis thaliana
123 <220> FEATURE:
124 <221> NAME/KEY: misc_feature
125 <222> LOCATION: (1243, 1265)
126 <223> OTHER INFORMATION: unidentified residue
127 <400> SEQUENCE: 5
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129 ggttagcaata caaaaatccg gttctctt aatcccgtt atagatatgt ctgaccagg 120
130 atccaaacat gccctcgta aagcatcgaa agacttcggc ttcttcaagg tgatcaacca 180
131 tggcggttcc gcagagctag tctctgttt agaacacgg accgtcgatt tcttctcggt 240
132 gccaagtca gagaaaaccc aagtcgcagg ttatccctt ggatacggga acagtaagat 300
133 tggtcggaat ggtgacgtgg gttgggttga gtacttggat atgaacgcta atcatgattt 360
134 cggttcgggt ccactatttca aagtccttcaaaaagccg ggaacttca gaaacgcatt 420
135 ggaagagtac acaacatcgat tgaaaaat gacattcgat gtttggaga agatcacaga 480
136 tgggctaggg atcaaaccgaa gaaacacact tagcaagctt gtgtctgacc aaaacacgg 540
137 ctcgatatttgc agacttaatc actatccacc atgtccttca agcaataaga aaaccaatgg 600
138 tggtaagaat gtgatgggtt ttggtaaca cacagatcct caaatcatct ctgtcttaag 660
139 atctaacaac acttctggtc tccaaattaa tctaaatgtt ggctcatgga tctctgtccc 720
140 tcccgatcac acttccttct tcttcaacgt tggtgactct ctccaggtga tgacaaatgg 780
141 gaggttcaag agcgtgaggc atagggtttt agctaactgt aaaaaatcta gggttctat 840
142 gatttacttc gctggacattt cattgactca gagaatcgct ccgttgacat gtttggataga 900
143 caatgaggac gagaggtgt acgaggaggat tacttggctt gaataaaaaa actctaccta 960
144 caactctaga ttgtctgata ataggcttca acaattcgaa aggaagacta taaaaatct 1020
145 ccttaaatttga tgtgatatat ctattnatc tataagtgtg tgctacatac agacaatgca 1080
146 tctgtatattt ttaatccat aactgtaaaa acatgcaaga 1140

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147 gtgtgtttgt ttgttcgta atatcaacat cgctccatc ttttatggat aaaaaaaaaa 1200
W--> 148 aaaaaaaaaa cactgtttg atgtaagcta catttactt tangtgtaca tcttatttg 1260
 149 ttaantaaat tattcaaaa taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1318
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 152 <211> LENGTH: 329
 153 <212> TYPE: PRT
 154 <213> ORGANISM: Arabidopsis thaliana
 155 <400> SEQUENCE: 6
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 158 Leu Ile Pro Val Ile Asp Met Ser Asp Pro Glu Ser Lys His Ala Leu
 159 20 25 30
 160 Val Lys Ala Cys Glu Asp Phe Gly Phe Phe Lys Val Ile Asn His Gly
 161 35 40 45
 162 Val Ser Ala Glu Leu Val Ser Val Leu Glu His Glu Thr Val Asp Phe
 163 50 55 60
 164 Phe Ser Leu Pro Lys Ser Glu Lys Thr Gln Val Ala Gly Tyr Pro Phe
 165 65 70 75 80
 166 Gly Tyr Gly Asn Ser Lys Ile Gly Arg Asn Gly Asp Val Gly Trp Val
 167 85 90 95
 168 Glu Tyr Leu Leu Met Asn Ala Asn His Asp Ser Gly Ser Gly Pro Leu
 169 100 105 110
 170 Phe Pro Ser Leu Leu Lys Ser Pro Gly Thr Phe Arg Asn Ala Leu Glu
 171 115 120 125
 172 Glu Tyr Thr Thr Ser Val Arg Lys Met Thr Phe Asp Val Leu Glu Lys
 173 130 135 140
 174 Ile Thr Asp Gly Leu Gly Ile Lys Pro Arg Asn Thr Leu Ser Lys Leu
 175 145 150 155 160
 176 Val Ser Asp Gln Asn Thr Asp Ser Ile Leu Arg Leu Asn His Tyr Pro
 177 165 170 175
 178 Pro Cys Pro Leu Ser Asn Lys Lys Thr Asn Gly Gly Lys Asn Val Ile
 179 180 185 190
 180 Gly Phe Gly Glu His Thr Asp Pro Gln Ile Ile Ser Val Leu Arg Ser
 181 195 200 205
 182 Asn Asn Thr Ser Gly Leu Gln Ile Asn Leu Asn Asp Gly Ser Trp Ile
 183 210 215 220
 184 Ser Val Pro Pro Asp His Thr Ser Phe Phe Asn Val Gly Asp Ser
 185 225 230 235 240
 186 Leu Gln Val Met Thr Asn Gly Arg Phe Lys Ser Val Arg His Arg Val
 187 245 250 255
 188 Leu Ala Asn Cys Lys Lys Ser Arg Val Ser Met Ile Tyr Phe Ala Gly
 189 260 265 270
 190 Pro Ser Leu Thr Gln Arg Ile Ala Pro Leu Thr Cys Leu Ile Asp Asn
 191 275 280 285
 192 Glu Asp Glu Arg Leu Tyr Glu Glu Phe Thr Trp Ser Glu Tyr Lys Asn
 193 290 295 300
 194 Ser Thr Tyr Asn Ser Arg Leu Ser Asp Asn Arg Leu Gln Gln Phe Glu
 195 305 310 315 320
 196 Arg Lys Thr Ile Lys Asn Leu Leu Asn

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Input Set : N:\Crf3\RULE60\10670454.raw
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197 325
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 200 <211> LENGTH: 1237
 201 <212> TYPE: DNA
 202 <213> ORGANISM: Arabidopsis thaliana
 203 <400> SEQUENCE: 7
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 206 ccacagccag tcactttaga taaccacatc tccctaatcc ccacataccaa accgggtcc 180
 207 gttctactt cccatcaat ccccggtcg aacccatccgg atccggaaac gaaaacccca 240
 208 atcgtaaaag cctgcggagga gttcggttc ttcaaggctcg taaaccacgg agtccgaccc 300
 209 gaactcatga ctcgggttaga gcaggaggct attggcttct tcggcttgc tcagtcctt 360
 210 aaaaacccggg ccgggtccacc tgaaccgtac gtttatggta ataaacggat tggaccacac 420
 211 ggtgacgttg gttggattga gtatcttcc tcataatgcta atcctcagct ctcctctt 480
 212 aaaaaccccg ccgtttcccg tcaaaacccct caaattttcc gtgagtcggt ggaggagttac 540
 213 atgaaggaga ttaagaagt gtcgtacaag gtgtggaga tggttgcga agaacttaggg 600
 214 atagagccaa gggacactct gagtaaaatg ctgagagatg agaagagtgta ctcgtgcctg 660
 215 agactaaacc attatccggc ggcggaggaa gaggccgaga agatggtaa ggtgggggtt 720
 216 ggggaacaca cagacccaca gataatctca gtgctaagat ctaataacac ggcgggtctt 780
 217 caaatctgtg taaaagatgg aagttgggtc gctgtccctc ctgatcactc ttcttctt 840
 218 attaatgttggatggactaactaacta ggttcaagag tggatgttggatggactaacta 900
 219 agggtccttag ccgatatacaag gagatcgagg atttcaatga tatatttcgg cggaccgcca 960
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 221 aaagaattca cttggctca atacaaatct tctgcttaca agtctaagct tggatgttggatgg 1080
 222 agacttggtc tctttggatggactaactaacta aaacccttgt atgagatgttggatggatgg 1140
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 227 <211> LENGTH: 341
 228 <212> TYPE: PRT
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 230 <400> SEQUENCE: 8
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 233 Ile Pro Thr Tyr Lys Pro Val Pro Val Leu Thr Ser His Ser Ile Pro
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 235 Val Val Asn Leu Ala Asp Pro Glu Ala Lys Thr Arg Ile Val Lys Ala
 236 35 40 45
 237 Cys Glu Glu Phe Gly Phe Phe Lys Val Val Asn His Gly Val Arg Pro
 238 50 55 60
 239 Glu Leu Met Thr Arg Leu Glu Gln Glu Ala Ile Gly Phe Phe Gly Leu
 240 65 70 75 80
 241 Pro Gln Ser Leu Lys Asn Arg Ala Gly Pro Pro Glu Pro Tyr Gly Tyr
 242 85 90 95
 243 Gly Asn Lys Arg Ile Gly Pro Asn Gly Asp Val Gly Trp Ile Glu Tyr
 244 100 105 110
 245 Leu Leu Leu Asn Ala Asn Pro Gln Leu Ser Ser Pro Lys Thr Ser Ala
 246 115 120 125
 247 Val Phe Arg Gln Thr Pro Gln Ile Phe Arg Glu Ser Val Glu Glu Tyr

RAW SEQUENCE LISTING ERROR SUMMARY
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:5; N Pos. 1243,1265

VERIFICATION SUMMARY

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Input Set : N:\Crf3\RULE60\10670454.raw

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L:148 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:1200

M:341 Repeated in SeqNo=5